

What is claimed is:

1. A plane commutator comprising:

a plurality of commutator segments made of sintered carbon compound disposed to provide a plane commutator surface at an end thereof and a base portion at the other end, each said commutator segments having a projection extending from said base portion at equal intervals, a resinous boss member disposed in contact with said base portion and a plurality of metal base plates, each said base plate having an engagement hole to which said projection of one of said commutator segments is fitted and a terminal portion extending along an outer periphery of said boss member; wherein

a powder-accommodation pocket is formed around a foot of each said projection.

2. The plane commutator as claimed in claim 1, wherein

each said metal base plate comprises a press-formed plate having a dent for accommodating shaved powder formed when said projection of each said commutator segment is fitted to said engagement hole.

3. The plane commutator as claimed in claim 1, wherein

each said engagement hole has a corner edge for shaving an outer periphery of one of said projections.

4. The plane commutator as claimed in claim 1, wherein

said edge corner has a curved surface whose radius is less than 0.2 mm.

5. The plane commutator as claimed in claim 1, wherein said projection has a tapering portion at an edge thereof.

6. The plane commutator as claimed in claim 1, wherein each said plurality of commutator segments comprises a commutator surface portion providing said commutator surface and a commutator base portion providing said projection, and said commutator base portion has lower electric resistance than said commutator surface portion.

7. The plane commutator as claimed in claim 6, wherein said commutator base portion include metal powder.

8. A plane commutator comprising:

a plurality of commutator segments made of sintered carbon compound disposed to provide a plane commutator surface at an end thereof and a base portion at the other end, each said commutator segments having a projection extending from said base portion;

a resinous boss member disposed in contact with said base portion to support said plurality of commutator segments together at equal intervals; and

a plurality of metal base plates, each said base plate having an engagement hole to which said projection of one of

said commutator segments is fitted and a terminal portion extending along an outer periphery of said boss member; wherein said engagement hole is a spline-shaped hole having a plurality of radial grooves.

9. The plane commutator as claimed in claim 8, wherein a pocket is formed between each said radial groove and said projection to accommodate shaved powder formed when said projection of each said commutator segment is fitted to said engagement hole.

10. The plane commutator as claimed in claim 8, wherein each said plurality of commutator segments comprises a commutator surface portion providing said commutator surface and a commutator base portion providing said projection, said commutator surface portion and said commutator base portion includes metal-and carbon-powder, and said commutator base portion include more metal powder than said commutator surface portion.

11. A method of manufacturing a plane commutator including a plurality of commutator segments made of sintered carbon compound and a plurality of metal base plates fixed to said plurality of commutator segments by projections and holes, said method comprising the steps of:

extending said projections from each said commutator segment and forming said holes at each said metal base plate

so that said outside diameter of said projections is a prescribed size larger than an inside diameter of said holes;

inserting each said projection into one of said holes to shave an outer periphery of said projections so that said projection can be shaved by an inner periphery of each said hole.

12. The method as claimed in claim 11, wherein said step of inserting comprises the following steps before inserting each said projection:

arranging said plurality of commutator segments into a unit; and

arranging said plurality of metal plate to correspond to said plurality of commutator segments.

13. The method as claimed in claim 11, wherein said prescribed size is larger than a sum of a dimensional forming tolerance of said projections, a dimensional machining tolerance of said holes and a dimensional assembling tolerance of said plurality of commutator segments and said plurality of said metal base plates.